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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

TSM03-0140

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on August 14, 2006

Signature Judy A. Betts

Typed or printed name JUDY A. BETTS

Application Number
10/619,828

Filed
July 15, 2003

First Named Inventor
Sheu

Art Unit
2891

Examiner
Dana Farahani

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

- ☐ applicant/inventor.
☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☒ attorney or agent of record. 35,361
Registration number

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34

Steven H. Slater
Signature
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Typed or printed name

972-732-1001
Telephone number

August 14, 2006
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

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**PRE-APPEAL BRIEF
EXPEDITING PROCEDURE
EXAMINING GROUP 2800**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Sheu, *et al.* Docket No.: TSM03-0140
Serial No: 10/619,828 Art Unit: 2891
Date Filed: July 15, 2003 Examiner: Dana Farahani
Title: Self-Aligned MOSFET having an Oxide Region below the Channel

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

All claims have been finally rejected as being anticipated by U.S. Patent Application Publication No. 2002/0074598 to Doyle et al. ("Doyle) or obvious over Doyle, either alone or in combination with other references.

Issue

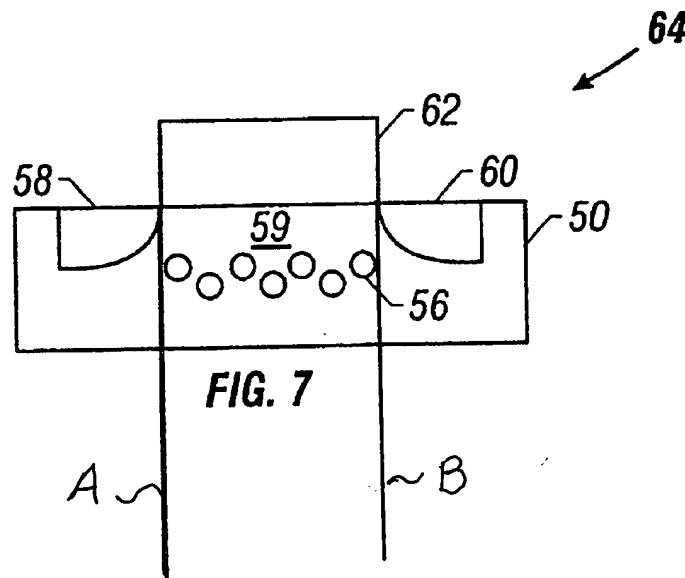
Whether Doyle discloses a transistor having an impurity region with outer boundaries that are "proximate, but laterally spaced apart" from the source and drain regions, respectively?

Discussion

Claim 1 is on the only independent claim pending. The claim recites a transistor having a source region, a drain region, and a channel region between the source and drain regions. The claim also recites an impurity region in the channel region. During prosecution, claim 1 was amended to

distinguish over Doyle by reciting “the impurity region having a first outer boundary that is proximate, but laterally spaced apart from the source region and a second outer boundary proximate, but laterally spaced apart from the drain region.”

The Final Rejection has asserted that Figure 7 of Doyle discloses all the limitations of claim 1, including the above quoted limitations. Figure 7 of Doyle is reproduced below:



For convenience, Appellant has marked the “outer boundary” of alleged impurity region 56 of Doyle by lines A and B. Note that the outer boundary marked by line A is aligned with source region 58 and the outer boundary marked with line B is aligned with drain region 60. This is in marked contrast to claim 1, which requires that the respective outer boundaries be proximate but “laterally spaced apart from” the respective source and drain regions. For at least this reason, claim 1 is patentably distinct over Doyle.

The Final Rejection posits two grounds for maintaining the rejection of claim 1 over Doyle. First, the Final Rejection states “the impurity region, at least any of the regions 56 except the

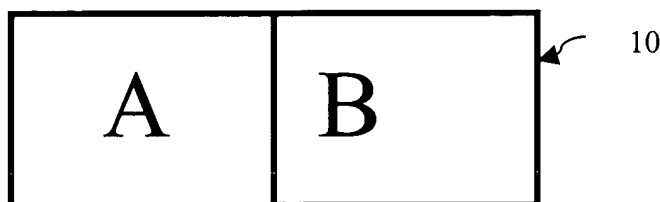
**PRE-APPEAL BRIEF
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outermost region 56, is BETWEEN the source and drain, and therefore, is spaced apart along a horizontal axis view from the source/drain” (Office Action dated June 12, 2006, Response to Arguments, pp. 5-6, emphasis added, capitalization in original). By its own admission, the Final Rejection recognizes that the “outermost region” is not spaced apart from the source/drain. This is precisely the “outer boundary” recited in claim 1.

Furthermore, the attempt to dissect the region of Doyle into numerous arbitrarily defined regions is not supported by the reference. The Final Rejection provides no rationale and the Doyle reference certainly doesn’t even address the issue, of how the area between the source and drain would be divided into these alleged regions. Does each circle 56 in Figure 7 represent an “impurity region?” This interpretation seems contrary to the teaching of Doyle, which merely states that “helium is implanted to form voids 56 in the exposed region” (Paragraph 0039). Nowhere does Doyle teach or even remotely suggest that each of these voids 56 could constitute an “impurity region.” In fact, the only logical or physical “region” suggested by Figure 7 is the region that is laterally aligned with source 58 and drain 60. This region is self-evidently not “laterally spaced apart” from the source and drain, as required by claim 1.

The second grounds for maintaining the final rejection is the assertion that “as can be seen in Figure 7, the outermost region(s) of the plurality of regions 56 is laterally spaced apart from the source and drain, at least the regions of the source/drain furthest from the gate” (Office Action dated June 12, 2006, Response to Arguments, pp. 5-6, emphasis added, parenthetical deleted). As can be clearly seen from the above reproduced Figure 7 of Doyle, the right-hand outer boundary of “impurity region” 56 is aligned with drain region 60. The left-hand outer boundary of “impurity region” 56 is aligned with source region 58. They are aligned. They are adjacent. They abut. Yet,

the Final Rejection asserts these two features are “spaced apart” from one another because the outside edge of source/drain region 58/60 is not immediately adjacent the impurity region. This rationale strains credibility. Under the rationale of the Final Rejection, blocks A and B, below, are spaced apart from each other. Why? Because edge 10 of block B is not next to block A.



Respectfully, it strains credibility to argue that block B is laterally spaced apart from block A simply because the outer edge of B is not proximate block A. It is equally wrong to argue that impurity region 56 of Doyle is laterally spaced apart from source/drain region 58/60, simply because source/drain region 58/60 has an outer edge that is farther from impurity region 56 than the inner edge. Even under the broadest reasonable interpretation of the claim language, that is not a reasonable result.¹

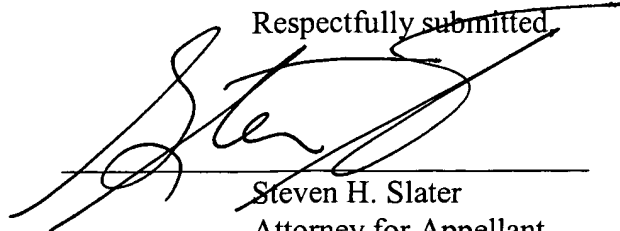
The rejection of claims 1, 3, 6, and 7 as being anticipated by Doyle and of claims 4 and 5 as being obvious over Doyle should be withdrawn for at least the above reasons. Claim 2 was rejected as obvious over Doyle in view of U.S. Patent No. 4,069,094 to Shaw et al. (“Shaw”). Shaw, however, does not teach the laterally spaced impurity region discussed above and hence fails to overcome the deficiencies of Doyle. Likewise, U.S. Patent No. 6,759,717 to Sagarwala et al.

¹ While not an issue in the Final Rejection, Appellant notes that during prosecution, other figures of Doyle have been asserted against the claims and overcome. For instance, in an Office Action dated November 16, 2004, Figure 17 of Doyle was asserted against the claims. Appellant distinguished over Figure 17 in Remarks mailed January 14, 2005, which Remarks were considered “persuasive” by the Examiner in withdrawing the rejection based upon Figure 17. Other figures of Doyle were also distinguished over, *e.g.*, in a Response mailed July 15, 2003. Hence, it is believed that all of portions of Doyle have been distinguished over to the satisfaction of Examiner.

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(combined with Doyle to reject claims 8 and 9-12) fails used to teach a laterally spaced impurity region and also fails to overcome the above deficiencies of Doyle. Hence, all claims are patentably distinct over Doyle either alone or in combination with Shaw and/or Sagarwala.

August 14, 2006

Respectfully submitted,


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